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REPORTS

RELATING TO

The Albert Cannel Mines, the Albert
Railway, Shepody Harbour, and Mary's
Point, New Brunswick.

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REPORTS, &c., relating to the ALBERT CANNEL
MINES, the ALBERT RAILWAY, SHEPODY HAR-
BOUR, and MARY'S POINT, NEW BRUNSWICK.

SHEPODY HARBOUR,

Inside of Grindstone Island, is capacious and safe, having, from its southern extremity at Mary's Point to the mouth of Shepody River, a harbour line of two miles in length by upwards of half a mile wide, with from two and a half to full five fathoms water at *lowest spring tides*. Inside the Lighthouse and Mary's reef it is protected from all winds except due S.W., which, however, causes *no swell*, the reef *beating down the roughest sea*. The only swell in the harbour is from S.E., but is never sufficient to be cause of danger to the smallest craft. A lighter laden with deals has been known to ride out the severest gale in perfect safety.

Shepody is the only low water harbour and place of refuge above St. John. The anchorage is excellent. There is but little run of tide or drift ice in the harbour; the strength of tide and run of ice being outside Grindstone Island into and out of the Petitcodiac and Memramcook rivers. All persons acquainted with the navigation of the bay are of opinion that the erection of the wharves and piers necessary for the business of the Albert Railway will render Shepody Harbour perfectly safe and free from ice at all seasons. Vessels lie safely at the wharves at Mary's Point, and depart thence during all months of the year.

The facilities which Shepody Harbour presents as an *ocean outlet* of the railway system of the *Dominion of Canada* and as an *entrepôt* for the business of the vast interior, for manufacturing (being in the immediate vicinity of *large coal-fields*), for *shipbuilding*, for *shipping*; for building breakwaters, piers, wharves, &c., cannot be surpassed, if equalled,

at any other port in the Bay of Fundy. The supply of wood and stone on the spot and in the vicinity is practically unlimited.

Shepody is the *nearest available outlet to the Atlantic* for all the vast interior traversed by the Grand Trunk and Intercolonial railways. It is nearer to Quebec and all Canada by 140 miles than Halifax, and by 50 or 60 miles than St. John; and is nothing inferior to either as a point of departure or importation to or from any part of the world.

As a naval and military station for the Dominion of Canada, Shepody possesses special advantages. It is well in the interior, and, having but one narrow entrance, the harbour can be completely fortified at little cost by defensive works on Mary's Point and Grindstone Island.

As an emigrant port it is probably without its equal in all the Dominion. It is in the immediate neighbourhood of the rich agricultural communities which surround the Bay of Fundy and its tributaries; and the fisheries, ship-building, mining, quarrying, lumbering, and other industries which flourish in all this region, offer a variety of pursuits and certainty of employment to all classes of emigrants from the moment of their arrival.

Statement of CAPTAIN ROBERT RUSSELL.

I am a native of Shepody, County of Albert, and now in my sixtieth year. I have followed the sea since I was twelve years of age. I commanded a vessel for twenty years in the coasting trade in the Bay of Fundy, and have for many years been a pilot in the head-waters of the Bay. I am thoroughly well acquainted with the harbour at Mary's Point, and consider it the best and safest in the Bay. I have frequented it at all times and seasons, and never lost a rope yarn. It is the only low water harbour and place of refuge above St. John, and it possesses all the advantages and requisites for a large trade and shipping.

August 28th, 1867.

ROBERT RUSSELL.

CAPTAIN GEO. WOOD, of Shepody.

I have been for twenty-five years engaged in the coasting trade in the Bay of Fundy, and am well acquainted with the harbour called Five Fathom Hole at the mouth of Shepody river.

This is a safe and commodious harbour formed by Mary's Point and Grindstone Island. I have been for sixteen years a Master Mariner, and during that period, and at all seasons of the year, I have frequented this harbour, and know the soundings as laid down in the Admiralty chart to be correct. There are five fathoms at dead low water, immediately off the end of the reef running out

from Mary's Point, at the very lowest tides; and the anchorage is perfectly safe from all winds. Taking the reef as a foundation, a breakwater or pier could easily be constructed at which vessels of large tonnage could load and discharge at low water.

The anchorage ground in deep water is of ample extent for a large fleet of vessels, and I can speak with confidence of its great safety. I lay there with my vessel called the "Amherst" during the gale of the 2nd August instant, which was the most severe within my recollection. I was bound to St. John, but being overtaken by the gale I ran in there for shelter. The wind was from the most exposed quarter, but I took no injury; and other vessels heavily laden rode out the gale in perfect safety.

I consider this harbour the best in the Bay of Fundy, and most convenient for the purposes of extensive trade.

August 20th, 1867.

GEO. WOOD.

CAPTAIN WM. WOOD.

I have been for eighteen years engaged in the coasting trade in the Bay of Fundy, and am well acquainted with Five Fathoms Harbour (Shepody). I confirm the foregoing statement in all particulars. I have laid there during a storm with upwards of twenty vessels, none of which took any injury.

WILLIAM WOOD.

Statement of CAPTAIN P. A. SCOTT, of Her Majesty's Navy.

I fully agree with Captains Russell and Wood in their statements as to the capabilities of Five Fathoms Harbour, at the mouth of Shepody River. My knowledge of the anchorage is derived from the *actual survey* of it, and from having used it for years, while prosecuting the Hydrographic Survey of that part of the coast. It is, in fact, the only safe anchorage in that part of the Bay of Fundy available *at low water*, and is much frequented in bad weather.

P. A. SCOTT.

Report of Mr. CHARLES ROBB, Civil and Mining Engineer, on Mineral Lands belonging to C. D. ARCHIBALD, Esq., F.R.S., in ALBERT COUNTY, NEW BRUNSWICK.

The property to which my attention was more particularly directed consists of about 3,000 acres of land, situated in a rich mineral district. It is further, for the most part, covered with a heavy growth of valuable timber of various kinds; and, when cleared, will constitute excellent farming land. It possesses, moreover, peculiar facilities and advantages as regards accessibility and transportation of produce both by land and sea.

The most remarkable and valuable products which characterize this part of your property consist in vast deposits of a highly bituminous mineral resembling CANNEL COAL, or more nearly allied to the BOGHEAD mineral of Scotland, by

which it is underlaid, and which has been proved to be a most valuable material for the production of illuminating and other oils and gas.

You have already received from various competent, scientific, and practical authorities, ample reports, both in regard to the quantity, quality, geological conditions, and economic value of this mineral product. These reports have been submitted to me, and having visited the various out-croppings, and examined all the pits, shafts, drifts, and other openings, as well as the general geological structure of the region, I am enabled from personal observation fully to verify and corroborate these statements, insofar as regards the quantity, mode of occurrence and facilities for mining. These observations, which include some important discoveries made subsequent to the previous reports, place it beyond a doubt that over a space of at least three miles in length, by a quarter of a mile in average breadth, you have on your property an aggregate thickness of at least 30 feet of the *best quality of camelite*, such as that submitted for experimental examination by the various chemists and manufacturers, and reported to yield, according to the samples tested, from 45 to 62 imperial gallons of crude oil per ton.

The country is undulating, and is intersected by numerous ravines, in which the beds or veins are found out-cropping several hundred feet above the natural drainage levels, thus affording access and convenience for the extraction of the mineral by the cheapest system of mining.

The pits and other openings made, although not prosecuted to any considerable depth, are amply sufficient to enable me also fully to verify the statements made in regard to the *increasing thickness and richness* of the deposits, which may therefore be considered practically inexhaustible.

Although the structure of the formation on the whole is sufficiently regular to afford ample assurance that the veins will prove to be persistent, I found, on some parts of the property, indications of slight local disturbance, such as occur at the celebrated Albert Mines, situated a few miles to the east, and nearly in the same geological position, and which, in conjunction with other significant circumstances, lead to the expectation that similar rich and valuable deposits may, on more minute examination, be found on your property. Considering the slight indications which led to the discovery of the Albert Mines and the similarity of conditions here, as well as the actual occurrence of Albert coal, although in a more diffused form, on your property, such an expectation seems reasonable.

A considerable proportion of the territory comprised within the property is underlaid by rocks of the Metamorphic Devonian age, which, in New Brunswick are rich in ores of copper, manganese, and other valuable metals. Rich indications of copper ores have been actually found in a vein on your property, and manganese has been mined in the neighbourhood.

Of late years the abundant supply of petroleum from natural springs has greatly restricted the production of oils by the distillation of solid materials. There are, however, in view of the probable largely increased demand for crude oil as a *fuel*, and for *gas* manufacture, &c., many reasons for believing that, with so rich a material and in a district so favourably situated as yours, this branch of manufacture, if extensively, systematically, and economically carried out, will compete successfully even with the natural sources of supply, which are at the best precarious and generally involve much expensive transportation.

For the manufacture of *illuminating gas*, the better qualities of your *cannel* appear, from the reports and from careful estimates of the cost of mining and shipping, to be fully capable of bearing the expense of transportation to the great cities on both sides of the Atlantic, while still yielding a very handsome profit upon the operation.

The timber with which this property is densely covered consists of maple, beech, and birch for barrel-making, and fuel; spruce, hemlock, fir, pitch, pine, and hachmatac for ship-building and ordinary building purposes, railway ties, bridges, &c. The forests have been for the most part untouched, and many of the trees have consequently attained a very great size.

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On other parts of your extensive property in Albert County great beds of gypsum occur, and valuable quarries of freestone of approved colours and texture have been opened, and their produce affords amply remunerative returns when sold in New York, Philadelphia, Boston, and other Atlantic cities. The freestone quarries at Mary's Point on the Bay of Fundy, also forming part of your property, have been extensively worked and furnish a very superior quality of building material, *light red* and *olive grey*, which can be shipped direct from the quarries into the vessel.

THE ALBERT RAILWAY AND SHEPODY HARBOUR.

The value of these various properties will be very materially enhanced by the construction of the ALBERT COUNTY RAILWAY, designed to run from a point on the European and North American Railway to the best and most convenient harbour on the Bay of Fundy in Albert County, such harbour being undoubtedly that formed by Mary's Point and Grindstone Island (SHEPODY) at the mouth of the Petitecodiac and Shepody rivers.

This Railway will intersect the rich mineral districts some of the features and resources of which I have endeavoured to describe; and, besides opening up a rich agricultural district, will connect by short branches with the Albert Mines, Hillsborough Plaister works, &c. It will prove a most valuable adjunct to the European and North American, and especially to the Intercolonial Railway, which will be tapped at its northern terminus by the Albert Railway, the whole length of which to Shepody Harbour will be about thirty or thirty-five miles.

The Harbour of Mary's Point (Shepody) will afford a safe anchorage for a large fleet of vessels with at least twenty-five feet of water at the lowest tides, and is said to be open at all seasons; while the adjacent shore is highly favourable for the establishment and growth of a large town or city.

The advantages of such a harbour, in immediate connection with the Intercolonial Railway can scarcely be overestimated, affording as it does the most direct point of shipment for the rich products of the western and central parts of the Dominion of Canada, and for the extensive lumbering districts of New Brunswick. At the same time the peculiar mineral and other resources of the district, for which an extensive demand will probably spring up in the western cities, must contribute largely to the return freights.

The construction of the Bay Verte Canal, between the Gulf of St. Lawrence and the Bay of Fundy, is only a question of time, and when effected will add immensely to the importance of the proposed new harbour and railway as the nearest available point of shipment from the Intercolonial Railway and New Brunswick to Europe.

The Albert Railway, for about two thirds of the distance, will pass through a country peculiarly favourable for the construction of such a work. The remaining third—being the central division—although it must traverse an elevated and undulating region, presents no unusual engineering difficulties. The steepest grade will not exceed seventy feet to a mile. It is confidently anticipated that the Government subsidy of \$10,000 (ten thousand dollars) per mile will amply suffice to defray at least one half of the cost of construction and equipment of the whole line.

CHARLES ROBB,
Civil and Mining Engineer.

St. John, N. B.,
24th September, 1867.

Note.—In view of the great discoveries made since the date of previous reports, it may be thought that I under-estimate quantity; but it should be borne in mind that I only take into account the very best No. 1 quality.—C. R.

Sir WILLIAM LOGAN, the chief of the Geological Survey of Canada, says:—

I consider Mr. Charles Robb a reliable mining engineer. He is careful in ascertaining his facts, gives them accurately, and states his conclusions conscientiously.

Report of EDWARD WADHAM, Esq., C.E.

I am well acquainted with Mr. Archibald's property called Mary's Point in the Albert County, New Brunswick, which I visited on two occasions, and carefully examined and surveyed. It is a promontory, jutting out into the Bay of Fundy, and, with Grindstone Island, forms, as I was well assured, the best and safest harbour in the Bay of Fundy.

My attention was particularly directed to the valuable Quarries of Freestone which this property contains. They consist of various beds of sandstone of uniform texture, and very durable. There are two colours, olive and light red, very pleasing to the eye, and much prized for statuary and monumental purposes, as well as a building material—I saw several buildings in New York, Philadelphia and other cities of the United States and the Provinces built of stone from these Quarries, and heard but one opinion of its excellent quality.

At the time of my visit, there were about one hundred men employed, and the Quarries were well furnished with the needful appliances for shipping from ten to fifteen thousand tons per annum, and the quantity might easily be largely increased. The profits, as estimated by the manager and others, were \$3.80 per ton, and my inquiries at the time led me to believe that they were not exaggerated.

Mary's Point, moreover, holds a commanding geographical position with reference to the general trade and navigation of the Bay of Fundy, and I have never seen a place better calculated for the *sea terminus* of a large system of railways. The great extent of the "foreshores," owing to the extraordinary rise of the tide, make it most eligible for ship-building and extensive manufacturing operations; and the Quarries on the spot, and cheap timber and wood in the neighbourhood, would render the building of wharves, piers, warehouses, &c., a matter of trifling cost, compared with other localities which do not possess these advantages.

The excellence of the harbour and the *impetus* given to the trade when Mary's Point shall be connected with the railway system of the Dominion of Canada by means of the Albert Railway, will necessarily attract population and enterprise; and a more convenient *site* for a *large seaport town* with all needful accessories could not easily be found in any country.

EDWARD WADHAM, C.E.

Dalton-in-Furness,
February, 1868.

DR. A. A. HAYES, *State Assayer, Boston, Mass.*

In former Reports on the Cannelite of New Brunswick, there was an omission, to which I will now call attention.

1st. Cannelite contains 55 per cent. of pure dry Albertite, and, on an average, 55 per cent. of Albertite affords 62 gallons of Oil as it is worked in the manufactory.

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2nd. When Cannelite is distilled by the side of Albertite, in the same way, Cannelite will yield 60 standard gallons per ton, while Albertite produces 105 gallons.

3rd. I found by comparing statements made by two Companies working Cannelite that the yield exceeded 60 gallons per ton.

30th January, 1866.

DR. ANDERSON, Professor of Chemistry in the University of Glasgow, reports as follows:—

The Brown Sample, when heated in close vessels, gave:—

Volatile Matter	46.56
COKE { Fixed Carbon	4.48
Ash	48.96

In the experimental Gas Retort it yielded 10.190 cubic feet.

Illuminating power, when burned in the Standard Burner, consuming 5 cubic feet per hour	36 candles.
Absorption by Bromine	26 per cent.
Specific gravity of Gas	0.658.

This Mineral is of a remarkably high quality, and gives a Gas equal in Illuminating Power to that obtained from the best qualities of Cannel Coal.

THOMAS ANDERSON.

University of Glasgow, 26th November, 1867.

Cannel of the "Brown Sample" above referred to exists in immense quantities, and the resident agent states, that "the whole hill from the bottom of ravines on its eastern and western slopes to its summit, an elevation of 400 to 500 feet and a mile or more in length, appears to be a solid body of Shales and Cannels. The veins rise regularly with the slopes of the hill on either side, and have precisely the same surface indications at the top as at the bottom"—and further, that the mineral rapidly improves as it is sunk upon both in quality and thickness of vein.

Mr. EVANS, of the CHARTERED GAS COMPANY, experimented with two varieties of the CANNELITE, and reports that he found them both very good. One sample gave an illuminating power of 29 candles. The other gave 37.76 candles. Condensation by Bromine 29 per cent. Mr. EVANS recommends the conversion of Shale into Oil on the spot as the most convenient and economical plan of supplying for Gas purposes.

Dr. FRANKLAND, F.R.S., in his concluding lecture on Coal Gas, delivered at the Royal Institution, on the 23rd March, 1867, referred to the New Brunswick CANNELITE as a very valuable *Gas material*, yielding Gas exceeding 37 candles illuminating power.

Mr. JOSHUA MERRILL, *Superintendent of the Downer Kerosene Oil Company of Boston, Massachusetts, reports:—*

A sample of Albert Cannelite, placed in my hands for analysis, contained :—

Volatile Matter	46.60
Fixed Carbon and Ash	53.40

100.00

The above gives a very large luminous flame, and abundance of Carbon in burning.

It yields of oily liquids 835 lbs., and, making all allowances, I have no hesitation in stating it safe to depend on a yield of 75 gallons per ton of crude oil of excellent quality.

See also, elsewhere, reports of Vernon Smith, C.E. ; Dr. A. A. Hayes, State Assayer, Mass. ; Professor Hind ; Dr. Doremus, of New York ; M. Cogniet, of Paris ; and others.

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